

IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): A method of depositing a silicon-containing film on a substrate, the method comprising:

providing a crystalline substrate in a process chamber of a processing system;

heating the substrate;

exposing a process gas to the substrate; and

depositing a silicon-containing epitaxial film on the crystalline substrate using the process gas,

wherein the process gas consists of HCD gas or HCD gas and at least one gas from the group consisting of a dopant gas, H₂, a germanium-containing gas, and an inert gas.

Claim 2 (Original): The method according to claim 1, wherein the exposing comprises exposing an inert gas to the substrate.

Claim 3 (Previously Presented): The method according to claim 2, wherein the exposing further comprises flowing the HCD gas at a flow rate between about 5 sccm and about 1,000 sccm and the inert gas at a flow rate between about 5 sccm and about 20,000 sccm.

Claim 4 (Canceled).

Claim 5 (Original): The method according to claim 1, wherein the exposing further comprises exposing H₂ to the substrate.

Claim 6 (Previously Presented): The method according to claim 1, wherein the exposing further comprises flowing H₂ at a flow rate between about 5 sccm and about 5,000 sccm.

Claims 7-11 (Canceled).

Claim 12 (Previously Presented): The method according to claim 1, wherein the dopant is selected from the group consisting of a phosphor-containing gas, a boron-containing gas, and an arsenic-containing gas.

Claim 13 (Previously Presented): The method according to claim 1, wherein the dopant includes at least one of a group consisting of PH₃, B₂H₆, and AsH₃.

Claims 14-15 (Canceled).

Claim 16 (Original): The method according to claim 1, wherein the exposing further comprises exposing a germanium-containing gas to the substrate.

Claim 17 (Canceled).

Claim 18 (Previously Presented): The method according to claim 1, wherein the germanium-containing gas is GeH₄.

Claim 19 (Previously Presented): The method according to claim 1, wherein the exposing further comprises exposing H₂ and a germanium-containing gas to the substrate.

Claim 20 (Original): The method according to claim 1, wherein the exposing further comprises exposing H_2 and GeH_4 to the substrate.

Claim 21-22 (Canceled).

Claim 23 (Previously Presented): The method according to claim 1, wherein the exposing comprises exposing a HCD process gas including HCD gas and a germanium-containing gas to the substrate; and the depositing comprises depositing a SiGe-containing epitaxial film on the substrate.

Claim 24 (Currently Amended): The method according to claim 23, wherein the depositing comprises selectively depositing, relative to a mask, a SiGe-containing epitaxial film on a silicon surface.

Claim 25 (Previously Presented): The method according to claim 23, wherein the depositing comprises depositing a SiGe-containing epitaxial film having a germanium content below about two atomic percent.

Claim 26 (Previously Presented): The method according to claim 23, wherein the depositing comprises depositing a SiGe-containing epitaxial film having a germanium content greater than about two atomic percent.

Claim 27 (Original): The method according to claim 1, wherein the heating comprises heating the substrate to between about $500^{\circ}C$ and about $900^{\circ}C$.

Claim 28 (Previously Presented): The method according to claim 1, wherein the heating comprises heating the substrate to between about 700°C and about 900°C.

Claim 29 (Currently Amended): The method according to claim 1, wherein the heating comprises heating the substrate to a temperature of about 800°C and the depositing comprises selectively depositing, relative to a mask, an epitaxial silicon-containing film on a silicon surface of the substrate.

Claim 30 (Previously Presented): The method according to claim 1, wherein the heating comprises heating the substrate to a temperature of about 700°C and the depositing comprises non-selectively depositing the silicon-containing epitaxial film on the substrate.

Claim 31 (Previously Presented): The method according to claim 1, further comprising providing a process chamber pressure less than about 100 Torr.

Claim 32 (Previously Presented): The method according to claim 1, further comprising providing a process chamber pressure less than about 10 Torr.

Claim 33 (Previously Presented): The method according to claim 1, further comprising providing a process chamber pressure of about 0.4 Torr.

Claim 34 (Original): The method according to claim 1, further comprising:
pretreating the substrate prior to exposing a HCD process gas to the substrate.

Claim 35 (Original): The method according to claim 34, wherein the pretreating comprises exposing a H₂ gas to the substrate at a substrate temperature between about 500°C and about 1000°C.

Claim 36 (Original): The method according to claim 34, wherein the pretreating comprises exposing a H₂ gas to the substrate at a substrate temperature of about 900°C.

Claim 37 (Original): A computer readable medium containing program instructions for execution on a processor, which when executed by the processor, cause a processing apparatus to perform the steps in the method recited in claim 1.

Claim 38 (Withdrawn): A system for processing a substrate, comprising:
means for providing a substrate in a process chamber of a processing system;
means for heating the substrate;
means for exposing a HCD process gas to the substrate to deposit a silicon-containing epitaxial film on the substrate.

Claim 39 (Withdrawn): A processing tool for depositing a silicon-containing film on a substrate comprising:
a processing system;
a transfer system configured to provide the substrate in a process chamber of the processing system;
a heater for heating the substrate;

a gas injection system configured to expose a HCD process gas to the substrate in the processing system to form a silicon-containing epitaxial film on the substrate; and
a controller configured to control the processing tool.

Claim 40 (Withdrawn): The processing tool according to claim 39, wherein the processing system comprises a batch type processing system or a single wafer processing system.

Claim 41 (Withdrawn): The processing tool according to claim 39, wherein the processing system comprises a batch type processing system containing a process tube.

Claim 42 (Withdrawn): The processing tool according to claim 39, wherein the processing system comprises a thermal processing system, a plasma processing system, or an atomic layer deposition system.

Claim 43 (Withdrawn): The processing tool according to claim 39, further comprising a processing system configured for pretreating the substrate.

Claim 44 (Withdrawn): The processing tool according to claim 39, further comprising a process monitoring system.

Claim 45 (Withdrawn): The processing tool according to claim 39, wherein the gas injection system is configured to expose a HCD process gas comprising HCD and an inert gas and at least one of a hydrogen-containing gas, a silicon-containing gas, and a germanium-containing gas to the substrate.

Claim 46 (Withdrawn): The processing tool according to claim 40, wherein the gas injection system is configured to expose a HCD process gas comprising HCD and an inert gas and at least one of a dopant gas and a halogen-containing gas to the substrate.

Claim 47 (Currently Amended): A method of depositing a silicon-containing film on a substrate, the method comprising:

- providing a substrate in a process chamber of a processing system;
- heating the substrate;
- exposing a process gas to the substrate; and
- depositing a silicon-containing epitaxial film on the substrate using the process gas, wherein the depositing comprises selectively depositing, relative to a mask, an epitaxial Si film on a crystalline Si substrate,

wherein the process gas consists of HCD gas or HCD gas and at least one gas from the group consisting of a dopant gas, H₂, a germanium-containing gas, and an inert gas.

Claim 48 (Canceled).

Claim 49 (Currently Amended): A method of depositing a silicon-containing film on a substrate, the method comprising:

- providing a substrate in a process chamber of a processing system;
- heating the substrate;
- exposing a process gas to the substrate; and
- depositing a silicon-containing epitaxial film on the substrate using the process gas,

wherein the depositing comprises selectively depositing, relative to a mask, an epitaxial SiGe film on a crystalline Si substrate,

wherein the process gas consists of HCD gas and a germanium-containing gas or HCD gas and a germanium-containing gas and at least one gas from the group consisting of a dopant gas, H₂, and an inert gas.

Claim 50-51 (Canceled).

Claim 52 (New): The method according to claim 1, further comprising pretreating the substrate with H₂ at 500°C before the exposing a process gas to the substrate.